Chlamydia
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A. Etiologic Agent: *Chlamydia trachomatis*

B. Mode of Transmission:

Adults: sexual contact

Children: may be asexual, exposure to infected genitals

> Possible sexual abuse should be suspected in prepubertal children beyond infancy who have vaginal, urethral, or rectal chlamydial infection, although asymptomatic infection acquired at birth can persist for as long as 3 years. (2000 *Red Book*, p.208-9)
>
> Infections that. . . . . can be asymptomatic for long periods after vertical transmission (e.g., ... *C. trachomatis* infection) are more problematic [in terms of assessing the likelihood of sexual abuse]. The possibility of vertical transmission should be considered in these cases, but an evaluation of the patient's circumstances by the local child protective services agency is warranted in most. (2000 *Red Book*, p.143)

Newborn: during delivery from infected mother

C. Incubation Period: 0 – 30 days

D. Clinical picture: Infection with *Chlamydia trachomatis (CT)* is a major cause of urethritis in males and cervicitis in females. However, because (according to CDC) approximately 75% of women and 50% of men have no symptoms, most people infected with chlamydia are not aware of their infections and therefore may not seek health care. Symptoms in males may include mucoid urethral discharge and/or dysuria.

> There is little information on the natural history of untreated urethral infection. Only one of eight infected men who were followed without treatment for a minimum of 21 days developed symptomatic urethritis. Although asymptomatic infections are common in men, *C, trachomatis* is also the cause of between 30 and 50% of cases of symptomatic NGU and an even higher proportion of cases of postgonococcal urethritis. . . . . Patients present with dysuria and urethral discharge, which tends to be white, gray, or sometimes clear, in contrast to the more purulent discharge observed with gonococcal urethritis. The discharge may be so slight as to be demonstrable only after penile stripping and then only in the morning. Some patients may deny the presence of discharge but may note stained underwear in the morning resulting from scant discharge overnight. However, there is sufficient overlap

between the signs and symptoms of gonococcal and nongonococcal urethritis so that a reliable distinction between them cannot be made on clinical grounds alone. . . . . *C, trachomatis* and *N. gonorrhoeae* are the most frequent causes of epididymitis in men younger than 35 years, whereas enterobacteriaceae (primarily *Escherichia coli*) are the usual pathogens in men older than 35. (Jones RB, Batteiger BE. Introduction to Chlamydial Diseases, in Mandel GL (Ed.). *Principles and Practices of Infectious Diseases;* 2000, p.1995)

Although asymptomatic rectal carriage of *C. trachomatis* occurs both in infants and adults, *C, C. trachomatis* is a fairly common cause of proctitis and proctocolitis in homosexual men. Proctocolitis can result from direct inoculation of the rectum in either men or women. (JonesRB, Batteiger BE. Introduction to Chlamydial Diseases, in Mandel GL (Ed.). *Principles of Infectious Diseases;* 2000, p.1996.)

Symptoms in females may include vaginal discharge, although many infections remain asymptomatic. Of particular importance is the fact that up to 40% of women with untreated chlamydia will develop PID. Undiagnosed PID caused by chlamydia is common. Of those with PID, 20% will become infertile; 18% will experience debilitating, chronic pelvic pain; and 9% will have a life-threatening tubal pregnancy (CDC estimates). Tubal pregnancy is the leading cause of first-trimester, pregnancy-related deaths in American women.

The natural history of endocervical infection with *C. trachomatis* in women is not known. . . . . Some data suggest that chlamydiae can persist for a prolonged period of time in the female genital tract. . . . . Approximately 70% of women with endocervical infection are without symptoms or have only mild symptoms such as vaginal discharge, bleeding, mild abdominal pain, or dysuria. Dysuria may reflect concurrent urethral infection, whereas a vaginal discharge may be due to endocervical rather than vaginal infection in the adult. *C. trachomatis* cannot infect the squamous epithelium of the adult vagina. However, it can cause vaginitis before puberty when the vagina is lined with transitional cell epithelium. On examination the cervix may appear normal or exhibit edema, erythema, and hypertrophy with a mucopurulent discharge from the os. (Jones RB, Batteiger BE. Introduction to Chlamydial Diseases, in Mandel GL (Ed.). *Principles and Practices of Infectious Diseases;* 2000, p.1996-7).

Chlamydial infection of the endocervix is often associated with a purulent endocervical discharge, congestion, inflammation, [and]. . . . . bleeding induced by swabbing the endocervical mucosa (friability of the mucosa). More than 50% of women with chlamydial cervicitis are asymptomatic, but may have an abnormal cervical appearance. (Schachter J, Alexander ER. Chlamydial Infections, in Evans AS, Brachman PS (Eds.). *Bacterial Infections of Humans;* 1998 p.212.)

The spectrum of PID associated with *C. trachomatis* infection ranges from acute, severe disease, with perihepatitis and ascites, to asymptomatic or "silent" salpingitis. Subclinical, undiagnosed salpingitis appears far more common than acute disease. When women with chlamydial salpingitis are compared with women with gonococcal or nongonococcal nonchlamydial salpingitis, the former are more likely to experience a chronic, subacute course with a longer duration of abdominal pain before seeking medical care. Yet they have as much or more tubal inflammation at laparoscopy. . . . . The long-term consequences of both acute PID and silent, subclinical disease are tubal infertility, ectopic pregnancy, and chronic pelvic pain syndrome. . . . . The mechanisms responsible for the tubal occlusion are not understood. In the case of *Chlamydia*, presumably they relate to a combination of chronic inflammation and scarring with either recurrent or persistent infection. (Jones RB, Batteiger BE, Introduction to Chlamydial Diseases, in Mandel GL (Ed.). *Principles and Practice of Infectious Diseases;* 2000, p.1997.)

Under the proper stimulus (as yet undefined), chlamydial cervicitis may progress to salpingitis, or to postpartum endometritis in pregnant women, and it may be associated with urethral syndrome. Endometrial infection has been shown to follow cervical infection in more than one-third of cases. . . . . Without progression to other sites, chlamydial cervical infection may remain active but silent, or it may be cleared by the host either spontaneously or with treatment. . . . . Chlamydial pelvic inflammatory disease is similar in presentation to that caused by other organisms, with the exception that it tends to be of more gradual than acute onset, to exhibit low-grade fever, and often has the elevation of the erythrocyte sedimentation rate (>30 min/hr). . . . . Major signs and symptoms include fever, lower abdominal pain, and adnexal and uterine tenderness on pelvic examination. (Schachter J, Alexander ER. Chlamydial Infections in Evans AS, Brachman PS (Eds.). *Bacterial Infection of Humans;* 1998, p.212.)

[A] symptomatic rectal carriage of *C, trachomatis* occurs in both infants and adults. . . . . Proctocolitis can result from direct inoculation of the rectum in either men or women. (Jones RB, Batteiger BE, Introduction to Chlamydial Diseases, in Mandel GL (Ed.). *Principles and Practice of Infectious Diseases;* 2000, p.1996.)

Laboratory findings may include evidence of urethral or cervical inflammation (PMNs).

E. Diagnosis

1. Genital tract infection documented by **ANY ONE** of the following criteria (a, b, c, d, or e):

a. Urethral or endocervical genetic probe DNA test positive for *C. trachomatis (Pace2, GenProbe);* **OR**
b. Direct fluorescent antibody test (DFA) positive for *C. trachomatis* (MicroTrak, Syva); **OR**
c. Enzyme immunoassay (EIA), **OR**
d. DNA amplification detection of *C. trachomatis* by PCR, LCR, TMA, or SDA test performed on endocervical, urethral or urinary specimen; **OR**
e. Urethral or endocervical culture positive for *C. trachomatis* (culture is difficult, not widely available).

F. Treatment (See CDC STD Treatment Guidelines in the appendix or at: www.cdc.gov/STD/treatment/default.htm
"Test of Cures" are not necessary or encouraged by the Missouri Department of Health and Senior Services (MDHSS).

G. Sex partners

1. Patients should be encouraged to refer sex partners for evaluation and treatment. All sex partners of patients who have *C. trachomatis* infection should be evaluated and treated for *C. trachomatis* and *N. gonorrhoeae* infections if their last sexual contact with the patient was within 60 days before onset of symptoms or diagnosis of infection in the patient. If a patient's last sexual intercourse was >60 days before onset of symptoms or diagnosis, the patient's most recent sex partner should be treated. Patients should be instructed to avoid sexual intercourse until therapy is completed and they and their sex partners no longer have symptoms.

2. Refer "high-risk" patients with chlamydia, who meet the following criteria, to the Disease Intervention Program for follow-up:
   a. Young adolescents (age <16 years)
   b. Persistent *CT* after treatment (treatment failure)
   c. Patients with *CT* complications (e.g. PID)
   d. Patients with a second episode within one year
   e. Patients who request assistance in locating or notifying their sex partners

3. See the Sexually Transmitted Disease Investigation part in Section 1 of this manual.

H. Patient Education

1. Transmission of *CT* and GC
2. Recognition of symptoms to assure rapid access to health care
3. Importance of taking medication
4. Complications of disease and medication
5. Safer sex (condom usage)

Websites

DHSS Disease Directory: Chlamydia
http://www.dhss.state.mo.us/GLRequest/ID/Chlamydia.html

CDC. STD Facts & Information: Chlamydia
http://www.cdc.gov/nchstp/dstd/disease_info.htm#Chlamydia

CDC. Pelvic inflammatory disease (PID).
http://www.cdc.gov/nchstp/dstd/Fact_Sheets/FactsPID.htm

NIAID. Chlamydial Infection.
http://www.niaid.nih.gov/factsheets/stdclam.htm

NIAID. Pelvic Inflammatory Disease.
http://www.niaid.nih.gov/factsheets/stdpid.htm

National Network of STD/HIV Prevention Training Centers (PTCs).
Curriculum Outline: Clinical STD Training Courses: Chlamydia Trachomatis
http://depts.washington.edu/nnptc/core_training/clinical/clinical_curriculum/chlamydia.html

Front

GONORRHEA/CHLAMYDIA AMPLIFIED NUCLEIC ACID TEST REQUEST

This section MUST BE COMPLETED before testing can be performed

PATIENT LAST NAME

PATIENT FIRST NAME

ADDRESS (STREET, CITY, STATE, ZIP CODE)

PATIENT COUNTY | PATIENT STATE

12-24 - all females
25 and over - females only with symptoms or contact to STD

BIRTHDATE ___/___/_____

SOURCE OF SPECIMEN
- ☐ ENDOCERVICAL
- ☐ URETHRAL
- ☐ URINE

SEX ☐ FEMALE ☐ MALE

DATE SPECIMEN COLLECTED ___/___/_____

PATIENT PREGNANT ☐ YES ☐ NO

FACILITY ICN

FACILITY NAME

RACE
W | B | A | AI/AN | NH/PI | O

ETHNICITY
H | NON-H

MEDICAID NUMBER

RISK FACTORS (CHECK ALL THAT APPLY)
- ☐ NEW PARTNER (LAST 90 DAYS)
- ☐ MULTIPLE PARTNERS (LAST 90 DAYS)
- ☐ CONTACT TO STD
- ☐ NONE OF THE ABOVE

SYMPTOMS
☐ YES ☐ NO

CLINICAL OBSERVATION (CHECK ALL THAT APPLY)
- ☐ MUCOPURULENT CERVICITIS (MPC), OR CERVICITIS
- ☐ CERVICAL FRIABILITY
- ☐ PID SUSPICION
- ☐ URETHRITIS
- ☐ NONE OF THE ABOVE
- ☐ NO EXAM

REASON FOR VISIT
- ☐ FAMILY PLANNING COMP
  - ☐ INITIAL ☐ OTHER
  - ☐ ANNUAL
- ☐ STD SCREEN
- ☐ PRENATAL

TREATMENT PRESCRIBED - TYPE AND DATE

STATE LAB SERIAL NO.

FOR STATE HEALTH LAB USE ONLY

DATE REPORTED

N. GONORRHOEAE

NEGATIVE	POSITIVE	EQUIVOCAL

C. TRACHOMATIS

NEGATIVE	POSITIVE	EQUIVOCAL

UNSATISFACTORY FOR TESTING:
- ☐ SPECIMEN NOT IDENTIFIED PROPERLY
- ☐ NO SPECIMEN
- ☐ TRANSPORT MEDIA EXPIRED
- ☐ IMPROPER SWAB
- ☐ _____

MISSOURI DEPARTMENT OF HEALTH AND SENIOR SERVICES
STATE PUBLIC HEALTH LABORATORY
307 WEST MCCARTY
PO BOX 570
JEFFERSON CITY MO 65101

MO 580-1586 (4-02) **SEE REVERSE SIDE FOR TEST INTERPRETATION** Lab-48

Back

W - White | B - Black or African American | A - Asian

AI/AN - American Indian/Alaskan Native | O - Other | NH/PI - Native Hawaiian/Pacific Islander

This test has been evaluated using female endocervical and male urethral swab specimens, and female and male urine specimens only. All other sites, legal cases, children under 12 years of age, should be tested by culture.

TEST INTERPRETATION

The APTIMA Combo 2 Assay is a target amplification nucleic acid probe test that utilizes target capture for the in vitro qualitative detection and differentiation of ribosomal RNA (rRNA) from Chlamydia trachomatis and/or Neisseria gonorrhoeae in the above mentioned specimen types. The assay may be used to test specimens from symptomatic and asymptomatic individuals to aid in the diagnosis of gonococcal and/or chlamydial urogenital disease.

A comparison of APTIMA Combo 2 results to patient infected status as established by culture and competitive assays shows the overall sensitivity and specificity for C. trachomatis is 95.8 and 98.2, respectively. The overall sensitivity and specificity for N. gonorrhoeae is 97.8 and 98.9, respectively.

Results from this assay for C. trachomatis and N. gonorrhoeae should be interpreted in conjunction with other laboratory and clinical data available to the clinician.

MO 580-1586 (4-02)

MISSOURI DEPARTMENT OF HEALTH AND SENIOR SERVICES

PARTNER NOTIFICATION REPORT

SITE/AGENCY/ICN #	DATE FORM COMPLETED:	FORM COMPLETED BY/TITLE:	ORIGINAL PATIENT I.D. NO.

NAME OF ORIGINAL PATIENT

INFORMATION BELOW PERTAINS TO ORIGINAL PATIENT'S PARTNER

DISEASE CONDITION THIS PERSON IS A CONTACT TO: ☐ **GONORRHEA** ☐ **CHLAMYDIA**

PARTNER'S NAME IS:

NICKNAME OR ALIAS:	SEX: ☐ MALE ☐ FEMALE	AGE	DATE OF BIRTH: ___/___/____

RACE: ☐ HISPANIC ☐ ASIAN/ORIENTAL ☐ BLACK ☐ AMERICAN INDIAN ☐ WHITE ☐ OTHER

MARTIAL STATUS: ☐ SINGLE ☐ MARRIED ☐ SEPARATED ☐ DIVORCED ☐ WIDOWED

ADDRESS/STAYS AT:	OTHER LOCATIONS: (i.e. Stays with parents or grandparents)

WORKS AT:

THE BEST PLACE, TIME AND WAY TO INFORM HIM/HER IS? PLACE:	TIME:	HOW:

HOME PHONE:	WORK PHONE:	CELL PHONE: BEEPER:

DESCRIPTION HE/SHE IS:

HEIGHT_____ FACIAL HAIR_____
BUILD/WEIGHT_____ SCARS_____
HAIR_____ TATTOOS_____
COMPLEXION_____ PIERCINGS_____

OTHER OUTSTANDING FEATURES:

IF PARTNER IS **FEMALE**, IS SHE PREGNANT?	IF PARTNER IS **MALE,** DOES HE HAVE A PREGNANT PARTNER?
☐ YES, WEEKS _____ ☐ NO	☐ YES ☐ NO

EXPOSURE DATE FOR FIRST CONTACT:	LAST/MOST RECENT CONTACT:	FREQUENCY/HOW OFTEN:

THIS PARTNER WAS TREATED/COUNSELED FOR DISEASE SUSPECTED: ☐ YES ☐ NO

IF YES: **COMPLETE THE FOLLOWING TREATMENT SECTION.**

TEST/TREATMENT SECTION

DATE TESTED:	RESULTS:	DATE TREATED:	AGENCY:

MEDICATION, TYPE AND AMOUNT:

PARTNER INFORMATION REPORT
(CD-40) INSTRUCTIONS

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1. A CD-40 should be completed on each named contact (sex partner) to an original patient. This includes sexual partners identified within 60 days prior to the original patient's positive test up to the date the original patient received treatment.
   - An original patient is the patient who has a positive test for Neisseria Gonorrhea and/or Chlamydia Trachomatis.
   - If there have been no sex partners within the prior 60 days, the most recent sex partner is presumed to be at increased risk for Gonorrhea/Chlamydia infection, and you should fill out this CD-40 form with this most recent sex partner.

2. Fill out the CD-40 as completely as you can. Please identify the **best** time and place where the partner may be contacted. Your goal is to get enough information to be able to find the named contact at 2 different locations such as:
   - Home
   - Work
   - Relative/Friend
   - Other

3. If the positive client doesn't have locating information on contacts identified during the initial interview, negotiate a time within one or two days for the patient to call back with the partner information. Write down your name, phone number, the date(s), and time(s) to call you back with the information.

4. Original Patient ID Number: Use the clinic number, social security, or medical record number used to maintain client records.

5. A good faith effort should be made to notify the partners of their exposure and refer them for testing and/or treatment by the LPHA. Complete testing and treatment section if your clinic or another known provider has tested and/or treated the partner for this disease exposure.

6. A Disease Intervention Specialist can provide assistance in providing notification to partners after your agency has exhausted it's efforts or if the partner resides in a different county.

7. **Send all CD-40's to your regional Disease Intervention Specialist.** To determine where and who your DIS is, call the Disease Investigation Unit at 573/751-6113 or online at: http://www.dhss.state.mo.us/ehcdp/index.html